

CLAIM AMENDMENTS

3151-01

What is claimed is:

1. *(Currently Amended)* A method of operating an internal combustion engine, comprising:

~~introducing an antioxidant composition comprising~~

~~supplying to said engine a fuel containing an antioxidant selected from the group consisting of:~~

(A) a sterically hindered phenol;

(B) an alkylene or alkylidene coupled sterically hindered phenol oligomer;

(C) a secondary aromatic amine;

(D) a reaction product of a hydrocarbyl-substituted hydroxy-containing aromatic compound, an aldehyde, and a carboxyl-substituted phenol; ~~or and~~

(E) a mixture thereof ~~into a combustion chamber of the engine during the operation of the engine~~

wherein the antioxidant composition is essentially free of sulfur and phosphorus.

2. *(Cancelled)*

3. *(Original)* The method of claim 1 wherein the antioxidant composition is introduced into the combustion chamber by injection from a dosing system or as a component of a fuel composition.

4. *(Original)* The method of claim 3 wherein the antioxidant composition is present in the fuel composition at 0.1 to 40,000 ppm by weight.

5. *(Original)* The method of claim 1 wherein the antioxidant composition (A) is a phenol having two or more alkyl substituents that contain 1 to 24 carbon atoms and that occupy the 2-position and 6-position of the phenolic ring.

6. *(Original)* The method of claim 1 wherein the antioxidant composition (B) is a methylene coupled phenol oligomer containing two or more phenolic rings wherein each phenolic ring is occupied at the 2-, 4- and 6-positions by an alkyl or arylalkyl group.
7. *(Original)* The method of claim 1 wherein the antioxidant composition (C) is a diarylamine containing one or more alkyl substituents wherein each substituent contains up to 16 carbon atoms.
8. *(Original)* The method of claim 1 wherein the antioxidant composition (D) is the reaction product of an alkylphenol, formaldehyde, and salicylic acid.
9. *(Original)* The method of claim 1 wherein the antioxidant further comprises one or more fuel additives.
10. *(Original)* A method of improving the performance of a lubricating oil of an internal combustion engine by operating the engine according to the method of claim 1.
11. *(Original)* The method of claim 10 wherein the engine is a compression-ignited engine or spark-ignited direct injection engine having an exhaust gas recirculation system.
12. *(Currently Amended)* The method of claim 10 wherein the engine is a compression-ignited or spark-ignited engine having an exhaust treatment device[], and the lubricating oil has at least one of the properties selected from the group consisting of a phosphorus content below 0.1% by weight, a sulfur content below 0.5% by weight, and a sulfated ash content below 1.5% by weight.
13. *(Original)* The method of claim 10 wherein the engine is installed on a motor vehicle and has a recommended drain interval for the lubricating oil of the engine of greater than 6,000 miles.

14. *(Original)* The method of claim 10 wherein the engine is a stationary engine having a recommended drain interval for the lubricating oil of the engine of greater than 150 operational hours.

15. *(Original)* The method of claim 10 wherein the engine is a compression-ignited or spark-ignited engine having an exhaust treatment device, and a fuel of a fuel composition used to fuel the engine has a sulfur content below 80 ppm by weight.